Sci-Port: LOUISIANA'S Science Center

The Rainforest Game

Grades: 4 - 8

Duration:

Program Description

The world's rainforests make up both temperate and tropical biomes that help to sustain a critical balance within our planet's ecosystem. These biomes are being destroyed in favor of more shortsighted concerns. This program will discuss the ecosystem of the world's rainforests, the diversity of both biotic and abiotic elements they contain, the interactions of these elements and how they maintain a balance, and the ramifications of the loss of these vital biomes.

Louisiana GLE:

Science:

Grade 4

Science as Inquiry

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)
4. Predict and anticipate possible outcomes (SI-E-A2)
50. Explain how some organisms in a given habitat compete for the same resources (LS-E-C1)
51. Describe how organisms can modify their environment to meet their needs (e.g., beavers making dams) (LS-E-C1)
52. Describe how some plants and animals have adapted to their habitats (LS-E-C2)
53. Identify the habitat in which selected organisms would most likely live and explain how specific structures help organisms to survive (LS-E-C2)
54. Describe the effect of sudden increases or decreases of one group of organisms upon other organisms in the environment (LS-E-C3)
56. Investigate the properties of soil (e.g., color, texture, capacity to retain water, ability to support plant growth) (ESS-E-A1)
57. Explain how unequal heating of Earth's land and water affects climate and weather by using a model (ESS-E-A2)
63. Demonstrate and explain how Earth's surface is changed as a result of slow and rapid processes (e.g., sand dunes, canyons, volcanoes, earthquakes) (ESS-E-A5) (ESS-E-A1)

Science and the Environment

70. Design an ecosystem that includes *living (biotic)* and *nonliving (abiotic)* components and illustrates interdependence (SE-E-A1)
71. Describe and explain food chains/webs and the directional flow of energy in various ecosystems (e.g., construct a model, drawing, diagram, graphic organizer) (SE-E-A2)
72. Predict and describe consequences of the removal of one component in a balanced ecosystem (e.g., consumer, herbivores, nonliving component) (SE-E-A2)

Grade 5

Science as Inquiry

7. Record observations using methods that complement investigations (e.g., journals, tables, charts) (SI-M-A3)
16. Use evidence to make inferences and predict trends (SI-M-A5)

19. Describe the processes of photosynthesis and respiration in green plants (LS-M-A4)
26. Identify and describe ecosystems of local importance (LS-M-C3)
29. Describe adaptations of plants and animals that enable them to thrive in local and other natural environments (LS-M-D1)
33. Identify the processes that prevent or cause erosion (ESS-M-A7)
35. Identify the atmosphere as a mixture of gases, water vapor, and particulate matter (ESS-M-A11)
36. Identify, describe, and compare climate zones (e.g., polar, temperate, tropical) (ESS-M-A11)
38. Estimate the range of time over which natural events occur (e.g., lightning in seconds, mountain formation over millions of years) (ESS-M-B3)
48. Determine the ability of an ecosystem to support a population (carrying capacity) by identifying the resources needed by that population (SE-M-A2)
50. Describe the consequences of several types of human activities on local ecosystems (e.g., polluting streams, regulating hunting, introducing nonnative species) (SE-M-A4)
51. Describe naturally occurring cycles and identify where they are found (e.g., carbon, nitrogen, water, oxygen) (SE-M-A7)

Grades 5-8

5. Identify independent variables, dependent variables, and variables that should be controlled in designing an experiment (SI-M-A2)
11. Construct, use, and interpret appropriate graphical representations to collect, record, and report data (e.g., tables, charts, circle graphs, bar and line graphs, diagrams, scatter plots, symbols) (SI-M-A4)

Grade 5

19. Describe the processes of photosynthesis and respiration in green plants (LS-M-A4)
24. Describe the roles of producers, consumers, and decomposers in a food chain (LS-M-C2)
26. Identify and describe ecosystems of local importance (LS-M-C3)
27. Compare common traits of organisms within major ecosystems (LS-M-C3)
28. Explain and give examples of predator/prey relationships (LS-M-C4)
29. Describe adaptations of plants and animals that enable them to thrive in local and other natural environments (LS-M-D1)
33. Identify the processes that prevent or cause erosion (ESS-M-A7)
35. Identify the atmosphere as a mixture of gases, water vapor, and particulate matter (ESS-M-A11)
36. Identify, describe, and compare climate zones (e.g., polar, temperate, tropical) (ESS-M-A11)
38. Estimate the range of time over which natural events occur (e.g., lightning in seconds, mountain formation over millions of years) (ESS-M-B3)
48. Determine the ability of an ecosystem to support a population (carrying capacity) by identifying the resources needed by that population (SE-M-A2)
49. Identify and give examples of pollutants found in water, air, and soil (SE-M-A3)
50. Describe the consequences of several types of human activities on local ecosystems (e.g., polluting streams, regulating hunting, introducing nonnative species) (SE-M-A4)
51. Describe naturally occurring cycles and identify where they are found (e.g., carbon, nitrogen, water, oxygen) (SE-M-A7)

Grade 6

Science and the Environment

42. Identify energy types from their source to their use and determine if the energy types are renewable, nonrenewable, or inexhaustible (SE-M-A6)
46. Identify ways people can reuse, recycle, and reduce the use of resources to improve and protect the quality of life (SE-M-A6)
47. Illustrate how various technologies influence resource use in an ecosystem (e.g., forestry management, soil conservation, fishery improvement) (SE-M-A8)

Grade 7

Physical Science

1. Identify the elements most often found in living organisms (e.g., C, N, H, O, P, S, Ca, Fe) (PS-M-A9)
8. Distinguish between *aerobic* respiration and *anaerobic* respiration (LS-M-A4)
25. Locate and describe the major biomes of the world (LS-M-C3)
26. Describe and compare the levels of organization of living things within an ecosystem (LS-M-C3)

27. Identify the various relationships among plants and animals (e.g., mutualistic, parasitic, producer/consumer) (LS-M-C4)
28. Differentiate between ecosystem components of habitat and niche (LS-M-C4)
29. Predict the impact changes in a species' population have on an ecosystem (LS-M-C4)
32. Describe changes that can occur in various ecosystems and relate the changes to the ability of an organism to survive (LS-M-D2)
34. Explain how environmental factors impact survival of a population (LS-M-D2)
35. Identify resources humans derive from ecosystems (SE-M-A1)
36. Distinguish the essential roles played by biotic and abiotic components in various ecosystems (SE-M-A1)
37. Identify and describe the effects of limiting factors on a given population (SE-M-A2)
38. Evaluate the carrying capacity of an ecosystem (SE-M-A2)
39. Analyze the consequences of human activities on ecosystems (SE-M-A4)
42. Describe how photosynthesis and respiration relate to the carbon cycle (SE-M-A7)
43. Identify and analyze the environmental impact of humans' use of technology (e.g., energy production, agriculture, transportation, human habitation) (SE-M-A8)

Grade 8

Physical Science

15. Illustrate the role of organic processes in soil formation (ESS-M-A4)
26. Describe and illustrate the layers of Earth's atmosphere (ESS-M-A11)
51. Analyze the consequences of human activities on global Earth systems (SE-M-A4)
52. Describe the relationship between plant type and soil compatibility (SE-M-A9)

Key Terms:

Rain Forest: forests characterized by high rainfall, with definitions setting minimum normal annual rainfall between 1750–2000 mm (68-78 inches).
Biome: climatically and geographically defined areas of ecologically similar climatic conditions such as communities of plants, animals, and soil organisms.
Tropical: The tropics, seated in the equatorial regions of the world, are limited in latitude by the Tropic of Cancer in the northern hemisphere at approximately 23°26' (23.4°) N latitude, and the Tropic of Capricorn in the southern hemisphere at 23°26' (23.4°) S latitude.
Temperate: temperate latitudes of the globe lie between the tropics and the polar circles.
Clearcutting: forestry/logging practice in which most or all trees in a harvest area are cut down.
Habitat: an ecological or environmental area that is inhabited by a particular animal or plant species.

Connections to Permanent Exhibits:

Exhibit: Description of exhibit; gallery location

Web Resources:

Name, summary, url

Pre-Visit Activities

Post-Visit Activities